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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SUBRAMANIAN, NARAYANSWAMY	
ART UNIT	PAPER NUMBER
3692	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/870,387	EVERTSZ ET AL.	
	Examiner	Art Unit	
	Narayanswamy Subramanian	3692	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *8,9,14,15,17,18 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,10-13,16,19 and 21-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to applicant's communication of January 4, 2007. Amendments to claims 1, 4, 21, 24 and 25 have been entered. As discussed in the previous office actions, claims 8, 9, 14, 15, 17, 18 and 20 are withdrawn from consideration as being drawn to a non-elected species. Claims 1-7, 10-13, 16, 19 and 21-27 have been examined. The rejections and response to arguments are stated below.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-7, 10-13, 16, 19 and 21-27 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory Subject matter.

35 USC 101 requires that in order to be patentable the invention must be a "new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" (emphasis added).

Claims 1-7, 10-13, 16, 19 and 21-27 are drawn to "a method for displaying a point in a phase space" and to "a method for displaying a curve in a phase space". As such the claimed invention does not fall within at least one of the four categories of patent eligible subject matter recited in 35 U.S.C. 101, that is a process, machine, manufacture, or composition of matter.

Claims 1-7, 10-13, 16, 19 and 21-27 are drawn to "a method for displaying a point in a phase space" and to "a method for displaying a curve in a phase space". As such the claimed invention is directed to a judicial exception to 35 U.S.C. 101 (i.e., an abstract idea, natural phenomenon, or law of nature) and is not directed to a practical application of such judicial

exception because the claims do not require any physical transformation and the invention as claimed does not produce a useful, concrete, and tangible result.

The Court of Appeals for the Federal Circuit issued opinions in State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F. 3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) and AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999). These decisions explained that, to be eligible for patent protection, the claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601 02. To satisfy section 101 requirements, the claim must be for a practical application of the § 101 judicial exception, which can be identified in various ways: (a) The claimed invention "transforms" an article or physical object to a different state or thing. (b) The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

The USPTO's official interpretation of the utility requirement provides that the utility of an invention has to be (i) specific, (ii) substantial and (iii) credible. See MPEP § 2107. It is not clear as to what is the utility of computing and displaying a point in space. The utility of the claimed invention is not specific, substantial and credible.

The tangible requirement does require that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had "no substantial practical application"). It is not clear as to what is the practical application of "displaying the point in phase space" or "displaying the point of the curve in phase space".

For an invention to produce a "concrete" result, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. In re Swartz, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000) (where asserted result produced by the claimed invention is "irreproducible" claim should be rejected under section 101). The opposite of "concrete" is unrepeatable or unpredictable. The steps of the claims are not sufficiently precise enough to guarantee that the same result will be produced for the same sets of inputs. Hence the claimed invention does not produce concrete result.

There is no useful, concrete and tangible result produced from implementing the steps of the claimed invention. The dependent claims are rejected for the same reason and by way of dependency on a rejected independent claim.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 1-7, 10-13, 16, 19 and 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 21, 23 and 25 recite the limitation "calculating a difference between an initial first data sample and a last data sample of the first sequence". However it is not clear as to what "difference" is being calculated. Hence the scope of the claim is not clear. Claims 2-7, 10-13, 16, 19, 22, 24 and 26-27 are rejected by dependency on a rejected independent claim. Appropriate clarification/correction is required.

Claim 21 recites the limitation "displaying the point of the curve in phase space". It is not clear as to which point on the curve is being displayed because the previous step determines several points of a curve in phase space. Appropriate clarification/correction is required.

Claim 23 recites the limitation "a display for displaying the point in a phase space based". It is not clear what the applicant means by "the point in a phase space based". Appropriate clarification/correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-7, 10-13, 16, 19 and 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart (US Patent 6,195,103 B1) in view of Caccavale (US Patent 5,664,106).

Claims 1, 23 and 25, Stewart teaches a method, system and a computer program product for use on a client computer, the method comprising: providing a first sequence of first data samples (See Column 3 line 32 – Column 5 line 4); calculating a single volatility of the first sequence of first data samples (See Column 3 line 32 – Column 5 line 4); scaling the volatility with a factor, the factor being dependent on the length of the first sequence (See Column 3 line 32 – Column 5 line 4); calculating a difference between an initial first data sample and a last data sample of the first sequence (See Column 3 line 32 – Column 5 line 4). A system for performing

these steps and a computer program product for use on a client computer are inherent in the disclosure.

Stewart does not explicitly teach the step of determining a first and a second coordinate value of a point in phase space based on the volatility and the difference; and displaying the point in phase space.

Caccavale teaches the step of determining a first and a second coordinate value of a point in phase space based on the volatility and the difference (See disclosure of Caccavale) and displaying the point in phase space (See Caccavale Column 27 line 60 – Column 29 line 15).

Both Stewart and Caccavale are concerned with displaying time series data to the user. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Stewart to include the teachings of Caccavale. The combination suggests that users would have benefited from rapid and accurate analysis of volatility (See Stewart Column 3 lines 11-15).

Claim 21, Stewart teaches a method computing a curve in a phase space, the method comprising the steps of: providing a first sequence s of first data samples (See Column 3 line 32 – Column 5 line 4); determining a set of sub-sequences s.sub.0 to s.sub.K-1 of the first sequence (See Column 3 line 32 – Column 5 line 4); calculating a volatility of the sub-sequence s.sub.i for each sub-sequence s.sub.i of the set of sub-sequences s.sub.0 to s.sub.K-1 (See Column 3 line 32 – Column 5 line 4); scaling the volatility with a factor dependent on the length of the sub-sequence s.sub.i (See Column 3 line 32 – Column 5 line 4); calculating a difference between an initial first data sample and a last data sample of the sub-sequence s.sub.i (See Column 3 line 32 – Column 5 line 4).

Stewart does not explicitly teach the step of determining a first and a second coordinate values of points of a curve in phase space based on the volatilities and the differences; and displaying the point of the curve in phase space.

Caccavale teaches the step of determining a first and a second coordinate values of points of a curve in phase space based on the volatility and the difference (See disclosure of Caccavale) displaying the point in phase space (See Caccavale Column 27 line 60 – Column 29 line 15).

Both Stewart and Caccavale are concerned with displaying time series data to the user. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Stewart to include the teachings of Caccavale. The combination suggests that users would have benefited from rapid and accurate analysis of volatility (See Stewart Column 3 lines 11-15).

Claims 2-7, 10-13, 16, 19, 22, 24 and 26-27, the features in these claims are either disclosed by the combination or are old and well known. The inclusion of these features would help make the computation more robust and efficient.

Response to Arguments

8. In response to Applicant's arguments that the claimed invention provides a useful, concrete and tangible result, the examiner respectfully disagrees. First of all it is not clear as to what is the utility of computing and displaying a point in space. The utility of the claimed invention is not specific, substantial and credible. Secondly it is not clear as to what is the real world application of computing and displaying a point in space. Thirdly, the steps of the claims are not sufficiently precise enough to guarantee that the same result will be produced for the same sets of inputs. Hence the claimed invention does not produce concrete result. Systems for

performing the underlying method or computer readable media encoded with computer programs for performing the underlying method do not overcome the 101 rejections because the underlying method is not directed to statutory subject matter.

In response to Applicant's arguments that the amendments to the claims overcome the 35 USC 112, second paragraph rejection, the examiner respectfully disagrees. As discussed above, it is not clear as to what "difference" is being calculated. Hence the scope of the claim is not clear.

In response to Applicant's allegation that Stewart fails to disclose the calculation of a volatility, the examiner respectfully disagrees. For instance in Column 4 lines 11-14, Stewart discloses computing fluctuations/first distances or standard returns, which is calculation of a volatility.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "In step 4 the volatility is calculated in accordance with .....i.e. (Page 10, lns. 17-22)") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that Caccavale is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both Stewart and Caccavale are concerned with displaying time series data to the user. It would have been obvious to one of

ordinary skill in the art at the time of invention to modify Stewart to include the teachings of Caccavale. The motivation to combine is that users would have benefited from rapid and accurate analysis of volatility, which is found in the Stewart reference (See Stewart Column 3 lines 11-15).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine is that users would have benefited from rapid and accurate analysis of volatility, which is found in the Stewart reference (See Stewart Column 3 lines 11-15).

Applicant's other arguments with regards pending claims have been considered but are not persuasive.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Narayanswamy Subramanian whose telephone number is (571) 272-6751. The examiner can normally be reached Monday-Thursday from 8:30 AM to 7:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Chilcot can be reached at (571) 272-6777. The fax number for Formal or Official faxes and Draft to the Patent Office is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PMR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dr. N. Subramanian
Primary Examiner
Art Unit 3692

February 17, 2007